What is claimed is:

1. A single-crystal material made of ceramic or metal, which internally has dislocations arranged one-dimensionally on respective straight lines at a high density of 10^6 to 10^{14} / cm^2.

2. A device for high-speed dislocation-pipe diffusion of ions or electron, comprising the single-crystal material as defined in claim 1.

3. A quantum wire device comprising a single-crystal material made of ceramic or metal, said single-crystal material internally having dislocations arranged one-dimensionally on respective straight lines at a high density of 10^6 to 10^{14} / cm^2, and quantum wires consisting of metal atoms introduced in said single-crystal material through a diffusion treatment, said quantum wires being arranged along said corresponding dislocations at a high density of 10^6 to 10^{14} / cm^2.

4. A thin film device comprising a single-crystal thin film made of ceramic or metal, said thin film internally having dislocations arranged one-dimensionally on respective straight lines at a high density of 10^6 to 10^{14} / cm^2, and nano-hole bundle formed along said corresponding dislocations.

5. A method of producing a single-crystal material made of ceramic or metal, which internally has dislocations arranged one-dimensionally on respective straight lines at a high density of 10^6 to 10^{14} / cm^2, said method comprising:

compressing a single-crystal blank made of ceramic or metal, from a direction allowing the activation of a single slip, in a temperature range of a brittle-to-ductile transition temperature to about a melting point of said single-crystal blank to induce plastic deformation therein; and

subjecting the resulting product to a heat treatment at a high temperature of one-half or more of said melting point by absolute temperature.

6. A method of producing a quantum wire device, comprising:

compressing a single-crystal blank made of ceramic or metal, from a direction allowing the activation of a single slip, in a temperature range of a brittle-to-ductile transition temperature to about a melting point of said single-crystal blank to induce plastic deformation therein, and subjecting the resulting product to a heat treatment at a high temperature of one-half or more of said melting point by absolute temperature, to provide a single-crystal material internally having dislocations arranged one-dimensionally on respective straight lines at a high density of 10^6 to 10^{14} / cm^2; and

subjecting said single-crystal material to a diffusion treatment to diffuse metal atoms from the surface of said single-crystal material to form quantum wires arranged along said corresponding dislocations at a high density of 10^6 to 10^{14} / cm^2.

7. A method of producing a thin film device, comprising:

compressing a single-crystal blank made of ceramic or metal, from a direction allowing the activation of a single slip, in a temperature range of a brittle-to-ductile transition temperature to about a melting point of said single-crystal blank to induce plastic deformation therein, and subjecting the resulting product to a heat treatment at a high temperature of one-half or more of said melting point by absolute temperature, to provide a single-crystal material internally having dislocations arranged one-dimensionally on respective straight lines at a high density of 10^6 to 10^{14} / cm^2: and

subjecting said single-crystal material to annealing or chemical etching to form nano-hole bundles along said corresponding dislocations.